

Abstract

The present invention provides a complex oxide having a composition represented by the formula $\text{Ln}_{1-x}\text{M}_x\text{NiO}_y$; wherein Ln is a lanthanide, M is at least one element selected from the group consisting of Na, K, Li, Zn, Pb, Ba, Ca, Al, Bi, and rare earth elements being not the same as Ln; and $0 \leq x \leq 0.8$; and $2.7 \leq y \leq 3.3$, or the formula $(\text{Ln}_{1-x}\text{M}_x)_2\text{NiO}_y$; wherein Ln is a lanthanide, M is at least one element selected from the group consisting of Na, K, Li, Zn, Pb, Ba, Ca, Al, Bi, and rare earth elements being not the same as Ln; $0 \leq x \leq 0.8$; and $3.6 \leq y \leq 4.4$, the complex oxide having a negative Seebeck coefficient at 100°C or higher.

The complex oxide of the invention has a negative Seebeck coefficient and low electrical resistivity and also has excellent heat resistance, chemical durability, etc., and thus can be effectively utilized as an n-type thermoelectric material in air at high temperatures.